Response to Referee 2

Walter Beckert

17 July 2010

Thank you for your detailed and well considered remarks. In response, below I offer a few clarifications and comments.

1. Backing out marginal costs, unobserved by the econometrician, from demand elasticities, given prices, is frequently done in applied analyses in empirical Industrial Organization. This typically enables subsequent merger simulations or other comparisons of equilibria. Such an exercise is beyond the scope of this paper. Moreover, given potential inaccuracies (if not deficiencies) of the price measure (cf. your point 5ii), such an approach in this context is likely to be fraught with compounded imprecision.

2. This question has in essence be addressed by various earlier papers. The classical study in this regard is Bresnahan and Reiss (JPE (1991), 99(5), 977-1009) who investigate the effect of entry on competition in concentrated markets, inter alia in retail markets. There have been various related studies since, among others by myself and N. Mazzarotto, investigating the effect of concentration on prices (Economics, 2010-16).

3. The assertion that the MMNL model is very general (p.13 of the paper) is based on Theorem 1 in McFadden and Train (JAE (2000), 15, 447-470; in the references). This result can be paraphrased as saying that essentially any discrete choice model can be as closely approximated by a MMNL as one pleases, under some relatively benign conditions. This is an extremely powerful result that liberates the MNL from its well-known limitations and has broadened its appeal to empirical researchers in Industrial Organization (e.g. Berry, Levinsohn and Pakes (Econometrica (1995), 63(4), 841-890 and the literature following thereon).

4. I apologize for any lack of clarification that may have led to this comment. Tables 3 and 9 provide the estimated coefficients in the conditional mean of the random coefficients (on price and distance) distribution, as well as their variances and covariance (column 4, with their standard errors in column 5). Furthermore, it is precisely the point of the MMNL to allow for heterogeneity across consumers which the classical and conventionally estimated MNL does not capture. It is for this reason that, in the analysis, the latter was estimated (without interactions).

5.   i) Following McFadden, the adjusted R squared is calculated as you suggested, with the modification that the likelihood of the full model is penalized by the number of estimated parameters.

  ii) I am sympathetic to your concern about the accuracy of the price index. Unfortunately, the type of shopping behaviour you are suggesting is hard to identify from the TNS scanner data used in this analysis.

  iii) (and also v) I regret that the exposition may not have clearly explained how to interpret the estimation output, as reported in the tables. Table 5, for example, provides the proportionate changes in fascia choice probabilities in response to a 5 percent price rise; e.g. the top left entry means that a 5 percent rise in Asda's price (index) leads on average to a reduction in consumers' probability to do their OSS at Asda by almost a half. So fascia-level demand is indeed quite elastic.

  iv) This observation is somewhat misleading because the point estimates are random variables. In order to render such an assessment precise, one would have to consider the variances and covariances of all the estimates involved in this comparison.

  vi) This is a very valid comment and qualification which should definitely be borne in mind when reviewing the estimation results. Unfortunately, the TNS data do not record the location of employment of the main shopper of the household and, hence, do not permit to empirically examine this possibility.

  vii) This comment again results from a lack of clarity in the exposition. As alluded to on p.18, the MMNL coefficients on price and distance are restricted to be negative in the model specification. They are both specified to be of the form $-\exp(a+b'z)$ where z is a vector of household characteristics.

6. Thank you for these editorial comments. They will be reflected in a revised version of

the paper.

Walter Beckert, 17 July 2010